AMENDMENT

In the Claims:

Please replace the presently pending claims with the following claims:

25. (Amended) A method to identify a compound which behaves as an agonist for a T-type calcium channel which method comprises:

a) contacting a recombinant cell which expresses the α_1 subunit of a heterologous T-type calcium channel with a compound to be tested; and

b) determining the ability of said compound to activate said α_1 subunit;

wherein said α_1 subunit is functional as a T-type calcium ion channel and is encoded by a nucleotide sequence which hybridizes under conditions of stringency corresponding to washing at 62° C in 0.2 x SSPE/0.1% SDS to a nucleic acid comprising SEQ. ID. NO: 23, 25 or 27, and

wherein said activating comprises enhancing the flow of calcium ions into said cell in the presence as compared to the absence of said compound;

whereby a compound which activates said α_1 subunit is identified as an agonist of said T-type calcium channel.

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26. The method of claim 25 wherein said activation is measured by measuring the current through the calcium channel before and after said contacting of said cell with said compound.

27. (Amended) The method of claim 25, wherein said cells contain a fluorescent dye sensitive to intracellular calcium concentration and said activation is determined by observing a change in the fluorescence of said dye when said contacting is performed.

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28. (Amended) A method to identify an antagonist of a T-type calcium channel which method comprises:

a) contacting a recombinant cell expressing the α_1 subunit of a heterologous T-type calcium channel with a known agonist of said T-type calcium channel;

b) contacting said cell with a compound to be tested; and

c) determining the ability of said compound to diminish the activation of said α_1 subunit by said agonist;

wherein said α_1 subunit is functional as a T-type calcium ion channel and is encoded by a nucleotide sequence which hybridizes under conditions of stringency corresponding to washing at 62° C in 0.2 x SSPE/0.1% SDS to a nucleic acid comprising SEQ. ID. NO: 23, 25 or 27, and

B2

wherein said activating comprises enhancing the flow of calcium ions into said cell in the presence as compared to the absence of said agonist;

whereby a compound which diminishes the activation of said α_1 subunit by said agonist is identified as an antagonist.

29. The method of claim 28 wherein said activation is measured by measuring the current through the calcium channel before and after said contacting of said cell with said compound.

30. (Amended) The method of claim 28, wherein said cells contain a fluorescent dye sensitive to intracellular calcium concentration and said activation is determined by observing a change in the fluorescence of said dye when said contacting is performed.

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31. (Amended) A method to prescreen compounds as agonists or antagonists of T-type calcium ion channels by virtue of their ability to bind said T-type channels which method comprises:

a) contacting a recombinant cell expressing the α_1 subunit of a heterologous T-type calcium channel with a compound to be tested; and

b) determining the ability of said compound to bind to said cell expressing said α_1 subunit;

wherein said binding is determined by observing competitive binding with a known agonist or antagonist of said channel;

wherein said α_1 subunit is functional as a T-type calcium ion channel and is encoded by a nucleotide sequence which hybridizes under conditions of stringency corresponding to washing at 62°C in 0.2 x SSPE/0.1% SDS to a nucleic acid comprising SEQ. ID. NO: 23, 25 or 27,

whereby a compound which is determined to bind said cell is identified as a compound which will behave as either an agonist or antagonist of a T-type calcium channel.

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Please cancel claims 32-33.